

LETTER TO THE EDITOR

Increase of stillbirths and unplanned out-of-hospital births during coronavirus disease 2019 lockdown and the Zagreb earthquake

Sir,

We read the article regarding the effect of the coronavirus disease 2019 (COVID-19) pandemic lockdown on perinatal outcomes in an Icelandic population published in AOGS¹ with great interest and would like to draw your attention to Croatian data in this context. Our study aimed to evaluate the effect of the first wave of COVID-19 pandemic and the Zagreb earthquake on perinatal outcomes in the largest Croatian maternity clinic at the University Hospital Center Zagreb. The study was approved on April 7, 2021 by the local ethics committee (approval No. 21/152-1) and the requirement to obtain informed consent was waived. The analysis covered the data of all pregnant women with singleton gestation admitted during the pandemic period from February 25 to December 31, 2020 (study group) and the corresponding prepandemic period in 2019 (comparison group). The pandemic period also included three major earthquakes (two occurred in Zagreb and one in Petrinja, Croatia) and over 100

subsequent minor earthquakes. We found a statistically significant two-fold increase in stillbirths, an increase of about five times in unplanned out-of-hospital births, and an increase in extremely premature (before 28⁺⁰ weeks of gestation) birth rate during the pandemic period (Table 1)

In terms of increase in overall stillbirth rate, our findings are consistent with previously published studies.²⁻⁴ However, none of the stillbirths reported in our study were among women with COVID-19. Croatian national policy, which requires obligatory PCR testing before hospitalization, eliminates a substantial proportion of asymptomatic severe acute respiratory syndrome coronavirus-2 infection being unrecognized. Hence, our data support the growing evidence of higher stillbirth rate in the pandemic period, possibly due to pandemic anxiety and induced life changes from the lockdown.

Moreover, we found a significantly increased number of unplanned out-of-hospital births during the study period. Based on

TABLE 1 Comparison of the study outcomes between the prepandemic period (February 25 to December 31, 2019) and the pandemic period (February 25 to December 31, 2020)

Pregnancy outcome	2019	2020	p value
Total singleton births	3277	2732	
Stillbirths, <i>n</i> (<i>n</i> per 1000 births)	9 (2.75)	18 (6.59)	0.0324
Gestational age (wk), mean (IQR)	39 (38–40)	39 (38–40)	0.5336
Premature delivery <37 gestational weeks, <i>n</i> (%)	334 (10.2)	308 (11.3)	0.1798
Premature delivery <34 gestational weeks, <i>n</i> (%)	144 (4.4)	137 (5.0)	0.2696
Premature delivery <32 gestational weeks, <i>n</i> (%)	99 (3.0)	99 (3.6)	0.2172
Premature delivery <28 gestational weeks, <i>n</i> (%)	28 (0.9)	43 (1.6)	0.0116
Cesarean delivery, <i>n</i> (%)	1024 (31.2)	881 (32.2)	0.4195
Vaginal delivery, <i>n</i> (%)	2246 (68.5)	1836 (67.2)	0.2791
Vacuum extraction, <i>n</i> (%)	7 (0.2)	15 (0.5)	0.0510
Birthweight (g), mean (IQR)	3410 (3035–3750)	3420 (3060–3760)	0.5336
5-minute Apgar score <7, <i>n</i> /total <i>N</i> (%)	21/3266 (0.6)	31/2703 (1.2)	0.0491
Epidural analgesia in labor, <i>n</i> (%)	760 (23.2)	658 (24.1)	0.4277
Episiotomy, <i>n</i> (%)	435 (13.3)	352 (12.9)	0.6728
Unplanned out-of-hospital birth, <i>n</i> (%)	2 (0.06)	11 (0.4)	0.0049

Abbreviation: IQR, interquartile range.

available data from the last decade, our annual out-of-hospital birth rate has been consistently around 0.05%–0.10% of all singleton gestations. However, during the pandemic period, the overall prevalence of unplanned out-of-hospital births was 0.4%. The frightening effect, mainly influenced by daily media reports of the increasing number of COVID-19-related deaths, might have led to reluctance and delay in attending hospital for childbirth.

Furthermore, our results show a significant increase in extremely premature singleton births during the pandemic period, which is in contrast to some recent reports.⁵ A possible explanation for this discrepancy could be that 65.1% (28 out of 43, data not shown) of extremely premature singleton births were observed within 3 months of the Zagreb earthquake. This suggests that the timing of an acute stressor (around late first trimester in our case) may have a role in increasing the preterm birth rate.

The limitations of our study include its retrospective nature with limited data available for some variables, such as information on the causes of the stillbirths, eventual late perinatal morbidity/mortality, and a single-center setting, which limits generalization. To confirm our findings, a nationwide register-based prevalence proportion study is warranted.

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